

**DEPARTMENT OF TOXIC SUBSTANCES CONTROL
PROJECT STATUS UPDATE
ZENECA/FORMER STAUFFER CHEMICAL
Richmond, California
Activities from December 27, to December 31, 2004**

REGULATORY OVERSIGHT SUMMARY

San Francisco Regional Water Quality Control Board (Water Board) is responsible for the management of the excavation work associated with the habitat restoration and the treatment and management of sediments in the marsh and freshwater lagoons. The Water Board is also responsible for dictating the schedule for these activities. The schedule is subject to change on a daily basis. The schedule may be affected by variables such as weather conditions and availability of backfill and other materials.

Department of Toxic Substances Control (DTSC) is responsible for overseeing the air monitoring requirements, management of soils stockpiled in the Upland area, management of haul trucks, and oversight of the use of on-site and nearby roadways. Recognizing that these activities have the potential to be disruptive, DTSC is trying to minimize the impacts to the community while adjusting to the Water Board's fluid schedule. DTSC staff is present at the site on a daily basis, Monday through Friday, to observe activities occurring on the Upland area and to obtain daily schedule updates.

AIR MONITORING

The real-time air monitoring is being conducted on site by both DTSC staff and Cherokee Simeon Ventures (CSV) contractors. Readings are taken from different locations around the site as either the DTSC staff person or CSV contractor moves from location to location. The CSV contractor conducts real-time air monitoring approximately hourly near the San Francisco Bay Trail, at the Freshwater Lagoons, marsh, and in the area where the lime treatment is occurring in the Upland stockpile area while work is occurring. Readings for total dust are also recorded on an hourly basis from the four stationary monitoring stations. This monitoring is done in addition to the chemical monitoring being conducted at the stationary air monitors that are collecting continuous air samples. DTSC is continuing to work with CSV to expedite the posting of the air monitoring data on the Campus Bay web site.

DTSC's toxicologist has reviewed the existing reports from the Marsh remediation area (air and soil sampling) and has identified two chemicals as the major chemicals of concern, arsenic and hydrogen sulfide. This determination was based upon the chemical concentrations found in the proposed excavation areas, the chemical properties and their toxicity. The greatest risk to off-site persons is from the potential inhalation of arsenic on soil particles. DTSC has reviewed the site data and determined that current real-time action levels, based on the ambient air quality standards for inhalable particles are protective of public health. In addition, the action levels of all the chemicals that are considered carcinogens at the site are based upon a risk of one additional case of cancer

in one million people exposed over many years. DTSC considers that the project action levels have been set at very conservative levels. Based upon our analysis of the data collected, DTSC believes that to date the marsh remediation activities have not posed an unacceptable risk to the community surrounding the site.

It is important to note, the real-time air equipment used to monitor for total dust and volatile organic compounds (VOCs) are sensitive to rain and high humidity (e.g. fog) and can provide inaccurate readings on occasion. As there was significant rainfall this week and high humidity, some equipment malfunctions were experienced by both DTSC staff and CSV representatives.

The equipment used to monitor real-time air conditions is as follows:

A photoionization detector (PID) is used to monitor for volatile organic compound (VOCs) gas or vapor in the air. The specific instrument being used by both DTSC and CSV is a MiniRae 2000. This meter uses ultraviolet light to break down chemicals to positive and negative ions that can be counted by a detector. The detector converts the count and displays it on the meter as parts per million. The detection limit of this instrument is one part per million. This meter can measure chemicals in the following chemical classes: aromatics, ketones, aldehydes, amines, amides, chlorinated hydrocarbons, sulfur compounds, unsaturated hydrocarbons, alcohols, saturated hydrocarbons, ammonia, arsine, phosphine, hydrogen sulfide, nitric oxide, bromine and iodine. However, the meter is not able to differentiate between the chemicals it detects; it tells you only whether a gas or vapor is present.

Airborne particulates (including lime) are being monitored using a MIE Personal Data RAM (PDR). This instrument measures mass concentrations of dust, smoke, mists and fumes. Because of this, the monitor also will measure fog which is a water particulate and high humidity and rain may contribute to higher readings. . The detection limit is 0.001 mg/m³ and measures particles that range in size from 0.1 to 10 micrometers (µm).

- Hydrogen Sulfide in air is being monitored using a Jerome 631-X analyzer. This meter can detect hydrogen sulfide as low as 0.003 parts per million (ppm). CSV representatives now have a portable hydrogen sulfide (H₂S) monitor on-site to monitor air on a real-time basis. The action level for H₂S is 0.030 ppm. H₂S readings were collected from an area near the San Francisco Bay Trail, at the Western Marsh, near the Freshwater Lagoons, and an area near the work activities in the Upland stockpile area. None of the readings exceeded the action levels and were as follows:
 - December 27 - all readings were less than the detection limit of 0.003 ppm.
 - December 28 - readings ranged from 0.001 to 0.004 ppm from morning until early afternoon. Equipment malfunctions occurred in the afternoon and no readings were taken after this occurrence.

- December 29 - readings ranged from 0.001 to 0.005 ppm
 - December 30 – readings ranged from not detected to 0.002 ppm.
- December 31 – Readings ranged from 0.002 to 0.016 ppm.

Currently DTSC staff does not have the use of a H₂S meter; however, it is anticipated that one will be available in early January 2005.

- CSV representatives monitor air for VOCs on a real-time basis. Action levels for DTSC staff occur if readings exceed 1 ppm. The following readings were collected:
 - December 27 – readings were collected from 12:10 to 12:23 PM due to a mix-up with the addition of new personnel. A reading of 5.2 ppm at 12:23 PM was detected near the Freshwater Lagoons. Due to the weather, DTSC did not collect readings on this date.
 - December 28 – readings ranged from 0.0 ppm to 27.7 ppm; however, the elevated readings are believed to be equipment malfunction due to the weather. DTSC's meter also showed elevated measurements that were later determined to be caused by excessive moisture in the instrument.
 - December 29 – readings ranged from 0.0 ppm to 0.2 ppm. DTSC did not have a meter on site this date due to equipment malfunction.
 - December 30 – readings ranged from 0.0 ppm to 0.3 ppm. DTSC monitored on this date but the meter malfunctioned.
 - December 31 – all readings were 0.0 ppm. DTSC did not have meters on site this date.
- Total Dust measurements are discussed in the Site Activities Section of this Update.
- CSV contractors began adjusting the location of the air monitoring stations as requested by DTSC in its December 24, 2004 letter. The purpose of the adjustments is to enhance the number of chemicals analyzed for at the perimeter air monitoring location at the North 49th Street location, obtain PM 10 (particulate matter less than 10 microns in size) readings in the predominant downwind direction from the Upland Stockpile area where lime treatment is on-going, and to enhance the air monitoring downwind of the Freshwater Lagoons.
- The maximum wind speed of 23 miles per hour was observed on December 31, 2004. CSV's data is being verified by comparing it to the Bay Area Air Quality Management District's (BAAQMD) meteorological data from the UC Richmond Field Station.

CORRESPONDENCE

- DTSC completed its review of the air monitoring plan associated with the Marsh Restoration area. A letter was sent to Cherokee Simeon Ventures and Zeneca Inc. indicating additional air monitoring requirements for the site. These additional requirements were also outlined in December 20 – 24, 2004 Zeneca Weekly Update and a copy of the letter is attached to this update.

SITE ACTIVITIES

DTSC staff was present on-site for the entire week of December 27 to observe the lime treatment activities, off-hauling of marsh sediments that are stockpiled in the Upland area, and to conduct real-time air monitoring. DTSC staff also observed lime treatment activities on January 2, 2005.

- **Marsh Cleanup Update**

- No excavation in the marsh was conducted this week.
- In November 2004, approximately 4,000 cubic yards of material from the western most portion of the western marsh was excavated and placed into the Upland Stockpile Area.
- In December 2004, an additional 7400 cubic yards of soil was excavated from the middle of the western marsh. This material was placed in the Upland Stockpile Area and is segregated from the 4,000 cubic yards of excavated marsh material. The more recently excavated marsh material is currently being treated with lime (see next bullet below) and hauled to Keller Canyon Landfill in Pittsburg for proper disposal and beginning the week of January 3, 2005 will also be disposing the material at Altamont Landfill in Livermore. Sixty-six trucks off-hauled approximately 1320 tons of material to the landfill on December 28, 29 and 31. On all three of these dates, DTSC staff detected transient odors after the trucks had been loaded with the marsh material. Both VOC and hydrogen sulfide readings were below action levels (with the exception of December 28 when the VOC meters malfunctioned). DTSC believes that the odors are a combination of the decaying organic (e.g. plant) material found in the marsh and the hydrating lime.
- CSV, the generator of the material, has determined that the marsh material excavated beginning in December 2004 is not a hazardous waste. This determination is based upon CSV's knowledge of the marsh material and the sampling data collected in September 2004 that indicates that lower concentrations (below hazardous waste levels) of soluble arsenic were found in other parts of the marsh. DTSC also reviewed a report submitted by CSV that evaluated the data collected from the marshes at the site. DTSC concluded that the report supported the conclusion that the marsh sediments would not be a hazardous waste when excavated. DTSC however stated that additional sampling, while not required, may be needed once the material is stockpiled

- **Lime Treatment of Excavated Marsh Material**

- The marsh material excavated in December and placed in the Upland Stockpile Area is currently being treated with pelletized lime (calcium oxide) to dry the marsh materials and make it acceptable by the landfill. The lime does this by directly reacting with the water in the marsh material and generating heat to boil off the water. This can create a steam cloud that may include finer lime particulates. Equipment operators

involved in this operation use fully enclosed cabs with high efficiency particulate (HEPA) filters or wear appropriate personal protective equipment as dictated by their site health and safety officer. Other workers are directed to stay upwind of the area being treated. This practice is acceptable by Cal/OSHA and is known as an administrative control to prevent exposure. Direct contact with lime may cause irritation to the skin and eyes.

- During the first day of treatment on December 23rd, clouds of steam were observed coming from the stockpile area. DTSC ceased the application method when it became apparent that excessive steam and lime particulates were being generated. DTSC staff and CSV contractors worked together to devise a different method to apply and mix the lime into the marsh material before work was allowed to resume.
- The particulates observed with the steam cloud were caused by various activities— that have since been corrected – such as: scooping up the lime from the lime stockpile with a front end loader, too rapid placement of the lime on the marsh material, driving over and pushing the lime around with a bulldozer, and the equipment used causing the finer particulates to become airborne.
- On December 24, the steam clouds were not observed leaving the vicinity of the excavation area after the revised lime application and mixing method were put into place.
- DTSC staff was present to monitor the work during the week of December 27th. This also included monitoring for dust. On December 29th at approximately 2:30 PM and December 31st at approximately 1:00 PM, DTSC staff ordered the shut down of all lime application activities for the remainder of the day because total dust levels were approaching the established action level and the wind speed was increasing.
- During the lime mixing activities, when dust levels may approach action levels, eye and nose irritation may occur. However, these health effects are temporary. Such transient low level exposures cause no long-term health impacts.
- The action levels for Total Dust are as follows:
 - 0.1 mg/m³ (time weighted average) = increase dust control measures
 - 0.25 mg/m³ (5 minute average) = increase dust control measures
 - 0.5 mg/m³ (5 minute average) = stop work
- Total Dust Measurements collected by CSV and DTSC staff were as follows:
 - CSV Measurements:
 - December 27 –
 - Instantaneous concentration: 0.000 to 0.094 mg/m³
 - Time weighted average: 0.012 to 0.079 mg/m³
 - December 28 –

- Instantaneous concentration: 0.047 to 0.121 mg/m³
- Time weighted average: .053 to 0.119 mg/m³
- December 29 –
 - Instantaneous concentration: 0.000 to 0.044 mg/m³
 - Time weighted average: 0.000 to 0.033 mg/m³
- December 30 –
 - Instantaneous concentration: 0.000 to 0.106 mg/m³
 - Time weighted average: 0.000 to 0.090 mg/m³
- December 31 –
 - Instantaneous concentration: 0.003 to 0.452 mg/m³
 - Time weighted average: 0.000 to 0.033 mg/m³

DTSC Measurements:

- December 27 – No measurements taken due to weather conditions.
- December 28 – No measurements taken due to weather conditions.
- December 29 – Instantaneous concentration: 0.011 to 1.2 mg/m³
- December 30 – Instantaneous concentration: 0.017 to 0.156 mg/m³
- December 31 – Instantaneous concentration: 0.001 to 0.019 mg/m³

- **Marsh Sediment Material in Stockpile**

- As discussed in the Marsh Cleanup update, approximately 4,000 cubic yards of marsh sediment material were excavated in November 2004 and placed in the Upland Stockpile area. On December 23, 2004, DTSC staff completed sampling of the stockpiled material to determine the levels of metals, pesticides, and polychlorinated biphenyls present. The results indicate that the material is a hazardous waste due to the concentrations of soluble arsenic, soluble lead, total lead, total copper, and total mercury. Concentrations of PCBs and pesticides were below hazardous waste levels. The soluble levels of arsenic in the western portion of the marsh were higher than the other areas. Please note that neither the total or soluble hazardous waste levels were developed based upon potential risks to human health. A more detailed summary of the test results are attached to this update.
- The consequence of this determination is that the stockpiled marsh material must now be disposed of at a Class I or hazardous waste landfill. Additional regulatory requirements will also be imposed with regards to the type of trucks that can be used to haul this material. It is anticipated that the off-hauling of this material will begin in February 2005.
- The fact that the stockpiled marsh material is now classified as a hazardous waste does not represent any new threat to the community because the material is still wet and no dust is being generated. The chemicals of greatest toxicological concern (metals, pesticides, PCBs) are those attached to dust particles. As long as no dust leaves the site, there are no exposures by these chemicals to the community. Any vapors

emanating from the material have been quickly diluted by ambient air to levels below those of concern.

- DTSC has reviewed the site air monitoring data and to date, the chemical concentrations have been below the risk-based action levels with one exception. On December 23, 2004, hydrogen sulfide was detected at a concentration of 47.6 parts per billion (ppb), above its action level of 30 ppb. However, the sampling monitor used may have provided erroneous results due to accuracy problems based upon the cumulative length of time the monitor had been running. A real-time hand held monitor and a different collection method have been implemented to correct this problem.

- **Freshwater Lagoons**

The Water Board has required excavation of sediments from the two Freshwater Lagoons (Upper and Lower) located within the Habitat Restoration Area.

- **Upper Lagoon**

- Work on the Upper Lagoon began on December 30, 2004 under the Water Board's direct oversight and included placement of rubber mats and removal of vegetation.
- Beginning the week of January 3, 2005 the excavated sediments is expected to be directly loaded from the lagoon area and hauled to Kettleman Hills Landfill, a Class I hazardous waste landfill. CSV reported to DTSC on December 20, 2004 that samples collected in October 2004 indicated that the sediments are a hazardous waste due to the concentrations of DDT, DDE and DDD (both are breakdown products of DDT), soluble arsenic, and soluble copper.
- DTSC will continue to oversee air monitoring and truck movement throughout the Upland area of the site while these activities are occurring.

- **Lower Lagoon**

- Due to the concentration of pesticides and the odors currently present, DTSC has expressed concerns that hydrogen sulfide odors may be emitted during the excavation of the Lower Lagoon. Both CSV and the Water Board have agreed not to begin excavation in this area until a plan can be devised to mitigate these odors. The measures currently being assessed include working late at night and/or on weekends.
- As with the Upper Lagoon, CSV has determined that the material contained within the Lower Lagoon is a hazardous waste and it is anticipated that this material will also be taken to Kettleman Hills Landfill for disposal. The start date for this work is not known; however, updates will be provided to the community

REPORTS

- No reports were submitted for review.

PUBLIC PARTICIPATION

- DTSC established a toll free number for the Zeneca Site. The toll free number is 866-284-0721.
- DTSC continues to telephone the affected community on a regular basis to explain work at the site and respond to telephone inquiries placed to DTSC.
- The Zeneca/former Stauffer Chemical web site continues to be updated. The web site is <http://www.dtsc.ca.gov/SiteCleanup/Zeneca/index.html>. Weekly Project Updates, correspondence and other project documents are posted to the web site as they become available.